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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/910,477	07/20/2001	Andrew S. Wright	DATUMTE.008A	1633
20995	7590	08/08/2005	EXAMINER	
KNOBBE MARTENS OLSON & BEAR LLP			TRAN, KHANH C	
2040 MAIN STREET			ART UNIT	
FOURTEENTH FLOOR			PAPER NUMBER	
IRVINE, CA 92614			2631	

DATE MAILED: 08/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/910,477	WRIGHT ET AL.	
	Examiner	Art Unit	
	Khanh Tran	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 10-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-7, 10-23 and 28-34 is/are allowed.
- 6) ☒ Claim(s) 24 and 25 is/are rejected.
- 7) ☒ Claim(s) 26 and 27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>05/09/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The Amendment filed on 05/09/2005 has been entered. Claims 1-7 and 10-34 are pending in this Office action.

Response to Arguments

2. Applicant's arguments, see pages 11-12, filed on 05/09/2005, with respect to claims 8-9 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn after Applicants cancelled claims 8-9. However, upon further consideration, a new ground(s) of rejection is made in view of Cova U.S. Patent 6,141,390.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cova U.S. Patent 6,141,390.

Regarding claim 24, in column 4, lines 35-65, figure 4 illustrates a linear transmitter including in the forward path a modulator 403, a predistorter 407, a digital

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quadrature modulator 411, a D/A converter 412, an analog converter 413, power amplifier 103 and a transmitting antenna 105. A feedback loop of the transmitter 400 includes a trainer.

The trainer receives a modulation signal sample as one of the inputs.

The forward path monitors the input symbol stream applied to the transmitter.

In the feedback loop, part of the output signal is fed back via a coupler for monitoring the output signal; see column 6, lines 25-40. The output signal is compensated via a predistortion 407 and upconverted by analog upconverter 413.

Figure 6 shows the structure of predistortion 407. The filter coefficients in the LUT 603 are updated to compensate for distortion on the modulation signal sample; see column 10, lines 30-55.

Cova does not expressly disclose updating a second parameter used to select a band-limited pulse that is applied to the output of the waveshaping process as claimed. Cova further teaches that the predistortion filter in figure 6 is implemented using a digital filter circuit shown in figure 7 with filter coefficients stored in the LUT 603. The predistortion filter provides the predistortion functionality as a function of both the instantaneous power and magnitude envelope of the current modulation signal sample and the power or magnitude of previous modulation signal samples. In view of that, one of ordinary skill in the art at the time of the invention would have recognized that the predistortion functionality, corresponding to the claimed second parameter, are updated for providing an impulse response representative of the inverse characteristics of the power amplifier.

Regarding claim 25, Cova teachings apply to real time processing.

Allowable Subject Matter

4. Claims 1-7 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 1, claim 1 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a waveshaping circuit that shapes a first waveform to decrease a ratio of peak power to average power in the first waveform such that an available power of a radio frequency power amplifier can be efficiently used, the waveshaping circuit comprises “a preconditioning circuit adapted to receive an input symbol stream, a pulse generator adapted to receive the upconverted signal and to receive phase information from the digital numerically controlled oscillator, configured as set forth in the application claim”.

5. Claims 10-15 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 10, claim 10 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a preconditioning circuit adapted to reduce an amplitude of a signal peak in an input

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symbol stream in real time, the preconditioning circuit comprises "elements configured as set forth in the application claim".

6. Claim 16 is allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 16, claim 16 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a digital waveshaping circuit that decreases an amplitude of a selected portion of a composite multicarrier signal in real time, the digital waveshaping circuit comprises "means for performing the steps as set forth in the application claim".

7. Claims 17-23 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 17, claim 17 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a method of shaping a first waveform to decrease a ratio of peak power to average power in the first waveform by digitally modifying data in a data stream that gives rise to the first waveform, the method comprising "the steps performing tasks as set forth in the application claim". It is noted the closest prior art, Thomson (US 6,130,916), discloses a method and apparatus for improving a transmission data rate of baseband data in a

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wireless network. However, Thomson (US 6,130,916) fails to anticipate or render the above underlined limitations obvious.

7. Claims 26-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claims 28-34 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 28, claim 28 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a method of digitally preconditioning an input symbol stream to a pulse shaping filter in real time, the method comprising "the steps performing tasks as set forth in the application claim".

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 571-272-3007. The examiner can normally be reached on Monday - Friday from 08:00 AM - 05:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KCT

Khánh Cong Tran

08/05/2005

Examiner KHANH TRAN